# Publication Patterns of U.S. Academic Librarians and Libraries, 2013–2017 with Comparison to Preceding Studies

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This study adds to a series investigating the publication patterns of refereed articles in Library and Information Science (LIS) journals by United States academic librarians (USALs). The first study covered 1993–97, and subsequent studies continued in five-year increments. This study presents data and metrics for 2013–17 from fifty-two journals: thirty studied since 1998, seven added in 2003, and fifteen added in 2013. Over the years, the proportion of articles by USALs has decreased, despite evidence that USAL publishing is increasing. This difference suggests that other segments of LIS publishing are increasing faster than USAL publishing. The percentages of coauthorship and USALs who publish three or more articles in five years have increased. Large public research universities with librarians who have faculty status and tenure continue to be the most productive, but evidence suggests an increasing number of academic libraries are contributing to the LIS journal literature. The percentages of USAL and non-USAL articles in the journals studied since 1998 and those studied since 2003 or 2013 point to differences in growth among journals, the importance of new journals, and changes in affiliations of USAL authors and where USALs publish.

## Introduction

The literature of any field of study is shaped by the interests and backgrounds of its contributors. In fields that inform professions, an important question is how much do practitioners contribute to that literature? Because the field of LIS informs the library profession, it is important to study the contributions of librarians, including the extent of those contributions, benchmarks for individual and institutional productivity, and organizational settings that are conducive to productivity. Practitioners bring a perspective to the discipline that differs from other types of authors such as LIS faculty and information scientists in corporations. Librarians are more

likely than other LIS researchers to address issues related to practice that inform their peers in library settings and contribute to evidence-based decisions.

The present study of publication patterns of United States academic librarians (USALs) is the fourth in a series conducted by researchers at the University of Illinois Chicago Library and the Savitt Medical Library, University of Nevada, Reno School of Medicine. Each study in the series covers a five-year period. The first two studies reported results for 1993 to 1997 and 1998 to 2002.[1] The third study covered 2003 to 2012 but, to provide continuity in analysis, presented most of its key findings in five-year segments for 2003 to 2007 and for 2008 to 2012.[2] The first of the three studies drew its data from a list of well-recognized, refereed LIS journals. The second and third studies covered the titles on the original list, if still published, and added titles that had become important to USALs. The present study continues the preceding studies by examining the next five-year span, 2013 to 2017. It covers all refereed journals from the preceding studies that are still published and meet the study criteria, and adds fifteen journals. Comparison with preceding studies in this series places the current findings in a longitudinal perspective, and additional metrics expand understanding of trends.

Among the key findings of the preceding studies that covered 1993 to 2012 are:

1.  The proportion of articles by ≥1 USAL (hereafter USAL articles) fell from 44 percent for 1993–97 to 40 percent for 1998–2002 and 2003–7 and fell again to 35 percent for 2008–12.
2.  Coauthorship has been more variable but ultimately increased: starting at 45 percent between 1993 and 1997, dipping to 41 percent for 1998 to 2002, then rising between 2003 and 2007 to 49 percent and even further to 54 percent for 2008–12.
3.  Three or more articles within a five-year period has been a benchmark for high productivity by USALs in the preceding studies. From 1993 to 1997 6 percent of USALs studied had published three or more articles, 7 percent met that standard in 1998–2002, 10 percent in 2003–7, and 8 percent in 2008–12.
4.  Since 1993, the twenty most productive U.S. academic libraries have experienced slight declines in the proportion of their contributions to the literature. Among all refereed articles they provided 14 percent for 1993–97; 12.4 percent for 1998–2002; 11.5 percent for 2003–12. Among all refereed USAL articles they provide 32.2 percent for 1993–97, 31.3 percent for 1998–2002, and 31.1 percent for 2003–12.
5.  Seven libraries—The Ohio State University, Penn State University, Texas A&M University, University of Colorado at Boulder, University of Florida, University of Illinois Chicago, and University of Illinois Urbana-Champaign—appeared in the top twenty for each five-year period between 1993 and 2012. All were in large public institutions where librarians have faculty status and are eligible for tenure.[3]

Given these five trends, the present study aims to provide an analysis of USAL journal article publishing during the next five-year period in the sequence, 2013–17. The comparison between the 2013–17 analysis and its predecessors will give a sense of changes over time in how much U.S. academic libraries and librarians contribute to the LIS journal literature, how individual librarians and particular libraries contribute, and how the LIS journal literature relates to the interests of USALs.

This study addresses findings of its predecessors and explores additional areas. It asks the following research questions:

1.  Among all articles in the study's data set, is the proportion of USAL articles greater

   or less than found before? Are there changes in publishing by non-USALs that affect the data and hence the proportion?
2. Has coauthorship by USALs continued to increase?
3. What percentage of USALs met the productivity benchmark of three articles in five years?
4. How much do the most productive U.S. academic libraries contribute to the literature, and do these libraries have distinctive characteristics, for example, do their librarians have faculty status or eligibility for tenure; do they work at large public research universities?
5. How have the journals covered by these studies changed over time?

## Literature Review

The literature reviews in preceding studies in this series covered most of the literature relevant to USAL publication patterns. The literature review in the present study covers, for the most part, newer articles not previously discussed. In a few cases, to place newer work in context, it describes older research. Recent articles about librarian authorship have analyzed librarian productivity, coauthorship, factors affecting productivity of libraries, and the LIS journals in which librarians are most likely to publish.

### *Librarian Productivity*

Since 2015 at least two studies have examined librarian productivity. Walters and Wilder studied all peer-reviewed contributions in 31 LIS journals for 2007–11. They found that librarians contributed 23 percent of the articles in the thirty-one journals and observed that 23 percent is lower than earlier studies of librarians' productivity.[4] Aytac and Slutsky studied authorship patterns from 2011 to 2015 in seven science, technology, engineering, and mathematics (STEM) library journals.[5] Among these journals, 840 research articles (85.6%) had at least one author who was a practitioner. The difference in the percentage of librarian-authored articles in LIS journals and the percentage in the STEM library journals shows how choice of journals can affect findings, but also may indicate that STEM LIS journals are strongly oriented toward practitioners.

### *Coauthorship*

Studies of coauthorship in LIS address the percentage of coauthored articles among all articles and, among coauthored articles, percentages of different combinations of authors (for example, librarians with librarians, librarians with researchers, researchers with students). In three studies of LIS journals published between 2005 and 2014, Chang found that between 54 and 61 percent of the articles were coauthored.[6] Aytac and Slutsky's study of 7 STEM journals from 2011 to 2015 found that 60 percent were coauthored.[7] Regarding different combinations of authors, Chang's studies reported that librarian-librarian coauthored articles were more numerous than librarian-researcher coauthored articles. In a study of nineteen open access journals, there were 395 librarian-librarian coauthored articles compared to 223 librarian-researcher coauthored (77% more); in a second study of nine journals, 334 compared to 303 (10% more); and in a third study of ten journals, 336 compared to 319 (5% more). The 19 OA journals were much different from the nine and ten journals used in the other two studies. Only two of the nine journals and three of the ten journals were also used in the OA study. The nine journals in the second study were also used in the third study.[8]

## *Productivity of Libraries*

The staff of certain academic libraries contribute significantly to research published in LIS journals. Walters and Wilder reported the forty most productive libraries in thirty-one LIS journals from 2007 to 2012. Thirty-five U.S. academic libraries were among the forty.[9] What makes some academic libraries more productive than others? The predecessors of the present study provide evidence that libraries where USALs have faculty status and eligibility for tenure produce more publications than libraries whose USALs do not have faculty status. Other studies report that research requirements that normally come with a faculty position are a powerful motivation for junior faculty to do research.[10] Beyond the requirements of their appointments, librarians' productivity is also affected by the support they receive from their libraries. Smiegielski, Laning, and Daniels's survey of Association of Research Libraries (ARL) members found that support included funding, protected time for research, and formal mentoring programs.[11] Ackerman, Hunter, and Williamson surveyed early-career academic librarians, most from doctorate-granting institutions, and found informal mentoring was provided more than formal mentoring. They also found collaboration, especially with senior colleagues, led to successful research.[12]

Berg, Jacobs, and Cornwall examined the perceptions of Canadian research library directors about what motivated librarians to do research.[13] The directors considered promotion and tenure requirements as the strongest motivation for research. But Hoffmann, Berg, and Koufogiannakis correlated Canadian research librarians' self-reported publication output with their perceptions of motivation for research and found that personal motivation was more important than position requirements.[14]

While perceptions of the strongest motivations for research may differ between Canadian library directors and Canadian librarians, the data from U.S. research libraries shows that faculty status correlates with publication. Given the general effect of faculty status and related requirements for research, trends in the prevalence of faculty status in U.S. academic libraries are worth noting.

In 2015 Walters's survey of research library directors found that 52 percent of U.S. research universities granted faculty status to librarians. That percentage was close to the average of 55 percent for fourteen earlier studies of research universities. Walters shows that since 1980, studies have reported a wide range of percentages of research university librarians with faculty status—from 36 to 80 percent.[15]

## *LIS Journals*

LIS covers a broad range of subjects, and its journals specialize in different areas of the field. Over time some journals change their area of specialization. Huang, Shaw, and Lin studied LIS journals covered by *Journal Citation Reports* in its category Information Science and Library Science for 2005–14. Among other things, they found that during the period studied five journals' content scope "departed from librarianship concerns and focused more on broader information sciences issues."[16] Walters and Wilder differentiated LIS journals' specializations in relation to the departmental affiliations of the journal's authors. If authors from a given group (for example, LIS faculty and students, librarians, management faculty) contributed 60 percent or more of the articles in a given journal, then the journal was assigned to that group (e.g., LIS core journals, practice-oriented journals, management-oriented journals). For example, Walters and Wilder designated journals where librarians contributed 60 percent or more of the articles as practice-oriented journals. [17]

*Summary*

The present study focuses on contributions of USALs to the LIS journal literature. The articles covered in this literature review speak to topics related to USALs' contributions: the relationship between the employment status and USAL productivity, change in the proportion of librarians' contributions to the LIS journal literature, the extent of coauthorship and the proportions of different combinations of librarians and their librarian or non-librarian coauthors, and which journals are or are not oriented toward librarians. Consideration of this recent research enriches understanding of the present study's findings.

## Methodology

As stated earlier, the present article is the latest study in a series. From the outset of the series, the leading aim of each study was to analyze the extent of contributions of USALs to important journals that publish research in LIS. As time has passed, some important journals have ceased, some have changed their focus and titles, others have risen to prominence, and new ones have been founded. To ensure that the series covered important venues for the publications of USALs, succeeding studies in the series have added journals. For example, *portal: Libraries and the Academy* began publication in 2001 and was a key journal for USALs from its outset. In 2003, when it first fit a five-year period covered by the series, it was added to the journals being studied.

*Data Collection*

The present study included still-published journals covered by its predecessors (one exception is explained below) and added fifteen titles using the following method. In April 2018, one of the authors searched Scopus, limiting the results to 2013 to 2017 for the article types "articles or review" and included, in the affiliation field, variations of the words library, university, and USA. Examination of the results of these searches revealed a number of false positives, that is, articles not written by USALs. Given such false positives, the authors decided that a journal should have ten or more articles in the search result to merit further consideration. The journals that met the ≥10 article test then had to meet four additional criteria:

1.  *Ulrichsweb Global Serials Directory* assigned the journal the subject heading of library and information science.[18]
2.  *Ulrichsweb Global Serials Directory* identified the journal as refereed, and subsequent examination of the journal confirmed it was refereed.
3.  The language of the journal was English.
4.  The journal was covered by either *Journal Citation Reports* or had a percentile ranking of 40th or higher in Scopus's CiteScore, indications of impact in the field.

The authors examined each journal issue and recorded the total number of refereed articles, the number of refereed USAL articles, the total number of authors for each refereed article, and the number of USAL authors. For each USAL article, the authors recorded the name(s) of USAL authors, their affiliations, and the names, titles, and affiliations of coauthors who were not USALs. The authors excluded from their data set editorials, columns, book reviews, news notes, and similar contributions. Also excluded were articles from conference proceedings and in special theme issues, unless there was evidence those articles were peer reviewed. Such evidence included, for example, an editorial statement that the item was peer reviewed or an acknowledgement by article authors to anonymous reviewers. Some refereed journals provide

an article's dates of submission and acceptance. As in the preceding study in this series, if the time between these dates was twenty-five days or more, the authors included the article in the data set. Early in the project's data gathering, the authors observed articles that had unusually short turnaround times from submission to acceptance, in extreme cases the same day. These brief turnaround times were much shorter than turnarounds for the vast majority of articles and far shorter than the median turnaround times found in Wu and Yang's study of turnaround times.[19] These very short turnarounds suggested the fast-tracked articles underwent a vetting different from peer review. In response, the authors decided to observe a minimum twenty-five-day turnaround as evidence of peer review, unless other factors, such as acknowledgment of anonymous reviewers, justified an exception. Finally, *Knowledge Quest*, covered in preceding studies, published only special issues in 2013–17, and the authors could not find evidence that the articles in those issues were refereed, so the journal was not included in the present study.

The authors defined USALs as persons who held an MLS or equivalent degree and worked or had emeritus status in a library in a U.S. institution listed in the Carnegie Classification of Institutions for Higher Education.[20] When necessary, the authors searched the internet for evidence an author had earned an MLS. MLS holders who worked for an academic unit other than the library were not counted as USALs.

### *Data Coding and Analysis*

The authors standardized affiliations by using the name of the institution as listed by its regional accreditation agency.[21] Information from accreditation agencies also determined whether geographically dispersed institutions should be counted as one or different institutions. For example, Penn State has several different locations—including Abington, University Park, and York—that are accredited together and count as a single institution in this study. In contrast, the University of Illinois has three locations—Chicago, Springfield, and Urbana-Champaign—each accredited separately and counted separately in this study. If an article was not clear about an author's affiliation, for example using the affiliation "University of California," that has separately accredited campuses, a search was conducted for the author's affiliation and the institution's accreditation status at the time of publication.

To standardize USAL names, one member of the research team processed them as follows. Most of the USAL names were initially entered into the dataset as they appeared on the first page of the article, that is, first name first. USAL names were sorted alphabetically by first name and then reviewed for name variants within the data set and on the internet to identify those who had published under different names. Tony and Anthony, Sandy and Sandra, Ruth Smith and Ruth Smith Jones, and similar variants of a given USAL's name were identified. After that, the team member set a standard name based on this comparison and research and edited all variants to the standard. Finally, the team member sorted the edited file by institution, reviewed each institution's authors for similar names, and again edited to a standard name each variant for a given USAL.

To determine the incidence of different types of coauthorship, one research team member coded each coauthor as (1) USAL, (2) non-USAL librarian, (3) staff member at any organization (for example, library, educational institution, business), (4) student, and (5) researcher. "Researcher" included faculty at higher education institutions and staff who had four or more items credited to them on the first two pages of a Google Scholar search, conducted in 2020, of their name and affiliation.

The data were analyzed using Excel. In counting the number of articles per academic library, the distinct count feature was used, so that an article only counted once for a library, even if it also counted individually for multiple authors at that library. If an article was coauthored by USALs at more than one library, the article counted for each library represented.

Data given below for 1993–2012 is taken from the published versions of the three preceding studies in this series, with three exceptions. First, data for the most productive libraries in the present study give numbers for Long Island University, Cornell University, University of New Mexico, and Kent State University that were not reported in the 2003–12 article. Second, numbers reported in the tables of the 1998–2002 article did not include those for *Journal of Interlibrary Loan, Document Delivery & Information Supply* (*JILDDIS*), and *Medical Reference Services Quarterly* (*MRSQ*), so while thirty-four journals were studied in that time period, table 1 only shows the data for thirty-two. Numbers taken from the data set for 1998–2002 are included in table 2 in the present article. Third, data on the number of articles and the number of USAL articles in individual journals was not published in preceding studies but is included here as it is relevant to the discussion.

## Results With Discussion
### *Contributions of Academic Librarians*

Table 1 shows the percentages of USAL contributions to journals studied for each five-year period from 1993 to 2017. The present study for 2013–17 covered fifty journals, including fifteen not covered by preceding iterations of this study, hence increases in overall numbers. Given the varying number of journals studied for each five-year period, making comparisons based on percentages rather than absolute numbers is more telling. The percentage of USAL articles increased slightly after a long decline, moving up from 34.6 percent in 2008–12 to 35 percent in 2013–17, but the percentage of authors who were USAL authors declined again, down to 26.55 percent in 2013–17 from 27.84 in 2008–12. As stated earlier, Walters' and Wilder's study for 2007–11 found the percentage of librarian contributions at an all-time low. Finlay, Ni, Tsou, and Sugimoto observed a decline in the percentage of librarian articles in the LIS journals they studied for the years 1956 to 2010.[22] In the present study, the number of USAL author instances in the journals studied increased by 107 percent over twenty-five years, but the number of overall author instances increased in the same time period by 189 percent even though the journals added to the study were important to USALs. To further investigate this trend, the authors calculated metrics per issue, since the number of journals changed over time and numbers per issue offer a comparison against a standard. From 1993/97 to 2013/17, instances of authorship per issue rose 84.21 percent (7.79 to 14.35), while instances of USAL authorship per issue rose 31.83 percent (2.89 to 3.81). When looking at articles, articles per issue rose 20.74 percent (5.16 to 6.23), while USAL articles per issue remained essentially steady, with a slight decrease of -3.11 percent over the five five-year periods (2.25 to 2.18), while the number of issues increased 57 percent. Overall, LIS journal article publishing by authors other than USALs has increased more than articles by USALs.

When analyzing the data in Table 1 to assess the effects of adding twenty-two journals since 2003, the data were divided into the thirty journals studied since 1998 and the twenty-two studied since 2003 or 2013. The breakdown shows that USAL authors have shifted where they publish over the past twenty years. The percentage of USAL articles in the journals added in 2003 and 2013 was 49.22 percent compared with the 28.98 percent in the journals studied since

| | 1993–1997 | 1998–2002 | 2003–2007 | 2008–2012 | 2013–2017 | 2013–2017 split (30 journals studied since 1998/22 journals studied since 2003 or 2013) |
|---|---|---|---|---|---|---|
| **TABLE 1** | | | | | | |
| **Contributions of USALs to Journals** | | | | | | |
| Number of journals studied | 32 | 32 | 41 | 39 | 52 | 30*/22 |
| Number of issues in journals studied | 703 | 716 | 855 | 843 | 1,104 | 682/422 |
| Number of refereed articles | 3,624 | 3,488 | 5,038 | 5,537 | 6,874 | 4,828/2,046 |
| Refereed articles per issue | 5.16 | 4.87 | 5.89 | 6.57 | 6.23 | 7.08/4.85 |
| Number of USAL articles | 1,579 | 1,380 | 1,997 | 1,916 | 2,406 | 1,399/1,007 |
| % of USAL articles | 43.57 | 39.56 | 39.64 | 34.60 | 35.00 | 28.98/49.22 |
| USAL articles per issue | 2.25 | 1.93 | 2.34 | 2.27 | 2.18 | 2.05/2.39 |
| Instances of authorship of refereed articles | 5,477 | 5,834 | 9,372 | 11,451 | 15,841 | 11,698/4,143 |
| Instances of authorship of refereed articles per issue | 7.79 | 8.15 | 10.96 | 13.58 | 14.35 | 17.15/9.82 |
| Instances of USAL authorship | 2,032 | 2003 | 3,120 | 3,188 | 4,206 | 2,502/1,704 |
| % of instances of USAL authorship | 37.10 | 34.33 | 33.29 | 27.84 | 26.55 | 21.39/41.13 |
| Instances of USAL authorship per issue | 2.89 | 2.80 | 3.65 | 3.78 | 3.81 | 3.67/4.04 |
| Authors per refereed article | 1.51 | 1.67 | 1.86 | 2.07 | 2.30 | 2.42/2.02 |
| USAL authors per USAL article | 1.29 | 1.45 | 1.56 | 1.66 | 1.75 | 1.79/1.69 |
| Number of sole-authored USAL articles | 869 | 893 | 1,026 | 890 | 943 | 523/420 |
| Number of Coauthored USAL articles | 710 | 567 | 971 | 1,026 | 1,463 | 876/587 |
| % of USAL articles that are coauthored | 44.97 | 41.09 | 48.62 | 53.55 | 60.81 | 62.62/58.29 |
| Unique USAL names | 1,515 | 1,487 | 2,182 | 2,268 | 2,877 | 1873/1410 |
| Unique USAL names per issue | 2.16 | 2.08 | 2.55 | 2.69 | 2.61 | 2.75/3.34 |
| Unique USAL names per refereed article | 0.42 | 0.43 | 0.43 | 0.41 | 0.42 | 0.39/0.69 |
| Unique USAL names per USAL article | 0.96 | 1.08 | 1.09 | 1.18 | 1.20 | 1.34/1.40 |
| Unique Libraries | 386 | 379 | 515 | 511 | 593 | 451/408 |
| Unique Libraries per issue | 0.55 | 0.53 | 0.60 | 0.61 | 0.54 | 0.66/0.97 |
| Unique Libraries per refereed article | 0.11 | 0.11 | 0.10 | 0.09 | 0.09 | 0.09/0.20 |
| Unique Libraries per USAL article | 0.24 | 0.27 | 0.26 | 0.27 | 0.25 | 0.32/0.41 |
| Published Source | WHW1 (1999) | WHW2 (2006) | Blecic et al. (2017) | Blecic et al. (2017) | | |

* In 2007, *Research Strategies* ceased publication. In 2013–17, *Knowledge Quest* published only special issues, and the authors could not find evidence that those articles were refereed. *Resource Sharing and Information Networks* merged (2009) into *Journal of Interlibrary Loan, Document Delivery, and Electronic Reserve; Journal of Government Information* was incorporated (2005) into *Government Information Quarterly*. These developments reduced the journals that had been studied for 1998–2002 to thirty still published during 2013–17.

1998, and the percentages of USAL authors were 41.13 and 21.39 respectively. Interestingly, the 2003–17 journals had fewer articles per issue and fewer instances of authorship per issue than the 1998–2017 journals, indicating that the twenty-two journals had less of an impact on the overall numbers than might be expected. Though the twenty-two make up 42.31 percent of the journals studied, they only account for 29.76 percent of the articles studied. However, the twenty-two journals had the highest marks for USALs in many categories over all twenty-five years, such as percentage of USAL articles (49.22%), percentage of instances of USAL authorship (41.13%), USAL articles per issue (2.39), and instances of USAL authorship per issue (4.04). They also attracted more unique USAL names and more unique USAL libraries across different metrics, indicating that the twenty-two journals attracted more publishing librarians and libraries. In that sense, their impact was notable. The effects of journals studied will be discussed further in the next section, and the data will be reported in table 2 and figure 2.

**TABLE 2**
**Numbers of Articles and USAL Articles and Percentages of USAL Articles in Journals Studied, 1998-2017**

| Journal | 1998–2002 | | | 2003–2007 | | | 2008–2012 | | | 2013–2017* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Number of Journals** | **34** | | | **41** | | | **39** | | | **52** | | |
| | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** |
| College & Undergraduate Libraries (CUL) | | | | 58 | 97 | 56 | 116 | 91 | 106 | 121 | 93 | 113 |
| Internet References Services Quarterly (IRSQ) | | | | 111 | 84 | 93 | 47 | 83 | 39 | 54 | 91 | 49 |
| Medical Reference Services Quarterly (MRSQ) | 72 | 64 | 46 | 87 | 72 | 63 | 93 | 86 | 80 | 114 | 91 | 104 |
| Technical Services Quarterly (TSQ) | 84 | 89 | 75 | 86 | 91 | 78 | 71 | 93 | 66 | 54 | 91 | 49 |
| Issues in Science and Technology Librarianship (ISTL) | | | | | | | | | | 66 | 88 | 58 |
| Journal of Electronic Resources in Medical Libraries (JERML) | | | | | | | | | | 26 | 88 | 23 |
| Behavioral & Social Sciences Librarian (BSSL) | 51 | 76 | 39 | 43 | 88 | 38 | 59 | 86 | 51 | 45 | 87 | 39 |
| Library Resources & Technical Services (LRTS) | 76 | 71 | 54 | 97 | 78 | 76 | 89 | 75 | 67 | 81 | 84 | 68 |
| Reference Services Review (RSR) | 90 | 89 | 80 | 142 | 85 | 120 | 153 | 74 | 113 | 170 | 83 | 141 |
| Journal of Electronic Resources Librarianship (JERL), until 2008, The Acquisitions Librarian | | | | | | | | | | 57 | 82 | 47 |

| TABLE 2 Numbers of Articles and USAL Articles and Percentages of USAL Articles in Journals Studied, 1998-2017 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Journal | 1998–2002 | | | 2003–2007 | | | 2008–2012 | | | 2013–2017* | | |
| Number of Journals | 34 | | | 41 | | | 39 | | | 52 | | |
| | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles |
| Journal of Web Librarianship (JWL) | | | | | | | | | | 82 | 82 | 67 |
| Reference Librarian (RL) | | | | 201 | 74 | 148 | 83 | 71 | 59 | 99 | 79 | 78 |
| College & Research Libraries (CRL) | 180 | 84 | 151 | 144 | 80 | 115 | 153 | 74 | 113 | 207 | 78 | 161 |
| portal: Libraries and the Academy (Portal) | | | | 144 | 78 | 112 | 98 | 77 | 75 | 139 | 76 | 106 |
| Journal of Interlibrary Loan, Document Delivery, and Electronic Reserve (JILDDER), until 2004, Journal of Interlibrary Loan, Document Delivery & Information Supply | 108 | 73 | 79 | 104 | 70 | 73 | 124 | 78 | 97 | 42 | 76 | 32 |
| Collection Management (CM) | 96 | 75 | 72 | 48 | 81 | 39 | 57 | 81 | 46 | 77 | 75 | 58 |
| Serials Librarian (SL) | 60 | 53 | 32 | 80 | 46 | 37 | 67 | 63 | 42 | 63 | 75 | 47 |
| Journal of Library Administration (JOLA) | | | | | | | | | | 128 | 73 | 93 |
| Science & Technology Libraries (STL) | 153 | 65 | 100 | 66 | 79 | 52 | 66 | 83 | 55 | 78 | 68 | 53 |
| Journal of the Medical Library Association (JMLA), until 2002, Bulletin of the Medical Library Association | 189 | 67 | 128 | 235 | 50 | 117 | 193 | 67 | 130 | 164 | 64 | 105 |
| Reference and User Services Quarterly (RUSQ) | 57 | 67 | 38 | 53 | 60 | 32 | 86 | 64 | 55 | 59 | 63 | 37 |
| Journal of Library and Information Services in Distance Learning (JLISDL) | | | | | | | | | | 34 | 62 | 21 |
| Information Technology and Libraries (ITL), until 1982, Journal of Library Automation | 103 | 69 | 71 | 114 | 50 | 57 | 82 | 70 | 57 | 76 | 57 | 43 |

| TABLE 2 Numbers of Articles and USAL Articles and Percentages of USAL Articles in Journals Studied, 1998-2017 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Journal** | **1998–2002** | | | **2003–2007** | | | **2008–2012** | | | **2013–2017*** | | |
| **Number of Journals** | **34** | | | **41** | | | **39** | | | **52** | | |
| | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** |
| Digital Library Perspectives (DLP), until 2016, OCLC Systems & Services | | | | | | | | | | 63 | 56 | 35 |
| Journal of Library Metadata (JLM), until 2008, Journal of Internet Cataloging | | | | | | | | | | 74 | 55 | 41 |
| Journal of Academic Librarianship (JAL) | 156 | 71 | 110 | 209 | 63 | 131 | 200 | 61 | 121 | 343 | 55 | 189 |
| Library Collections, Acquisitions, & Technical Services (LCATS), until 1999 Library Acquisitions: Practice and Theory | 67 | 58 | 40 | 109 | 61 | 66 | 76 | 55 | 42 | 36 | 50 | 18 |
| Notes of the Music Library Association (NMLA) | 65 | 51 | 34 | 57 | 61 | 35 | 50 | 38 | 19 | 58 | 50 | 29 |
| Serials Review (SR) | | | | 98 | 50 | 49 | 88 | 45 | 40 | 54 | 50 | 27 |
| Evidence Based Library and Information Practice (EBLIP) | | | | | | | | | | 120 | 48 | 58 |
| Performance Measurement and Metrics (PMM) | | | | | | | | | | 33 | 45 | 15 |
| Cataloging & Classification Quarterly (CCQ) | 108 | 47 | 51 | 89 | 61 | 54 | 160 | 54 | 87 | 167 | 45 | 75 |
| American Archivist (AA) | 55 | 36 | 20 | 42 | 36 | 15 | 76 | 45 | 34 | 97 | 43 | 42 |
| Collection and Curation (CC), until 2018, Collection Building | | | | 99 | 57 | 56 | 114 | 58 | 66 | 70 | 40 | 28 |
| Journal of Map & Geography Libraries (JMGL) | | | | | | | | | | 59 | 37 | 22 |
| Library Quarterly (LQ) | 65 | 17 | 11 | 86 | 15 | 13 | 67 | 13 | 9 | 67 | 22 | 15 |
| New Review of Academic Librarianship (NRAL) | | | | | | | | | | 116 | 22 | 25 |

| | TABLE 2<br>Numbers of Articles and USAL Articles and Percentages of USAL Articles<br>in Journals Studied, 1998-2017 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Journal** | **1998–2002** | | | **2003–2007** | | | **2008–2012** | | | **2013–2017*** | | |
| **Number of Journals** | **34** | | | **41** | | | **39** | | | **52** | | |
| | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** | **Total Articles** | **% USAL Articles** | **Number USAL Articles** |
| Information and Learning Science (ILS), until 2017, New Library World | | | | 176 | 16 | 28 | 179 | 41 | 74 | 176 | 18 | 31 |
| Library Management (LM) | | | | | | | | | | 188 | 17 | 32 |
| Library Hi Tech (LHT) | 105 | 41 | 43 | 167 | 46 | 76 | 183 | 33 | 61 | 208 | 17 | 36 |
| Library Trends (LT) | | | | | | | | | | 191 | 16 | 31 |
| Journal of Education for Library & Information Science (JELIS) | 75 | 2 | 2 | 74 | 9 | 7 | 101 | 10 | 10 | 122 | 11 | 13 |
| Information & Culture (IC), until 2006, Libraries & Culture, then, until, 2012, Libraries & the Cultural Record | 39 | 28 | 11 | 83 | 43 | 36 | 81 | 35 | 28 | 99 | 10 | 10 |
| Health Information and Libraries Journal (HILJ), until 2012, Health Libraries Review | | | | | | | | | | 96 | 8 | 8 |
| Library & Information Science Research (LISR) | 88 | 13 | 11 | 123 | 6 | 7 | 154 | 6 | 10 | 173 | 6 | 10 |
| Public Libraries (PL) | 101 | 9 | 9 | 108 | 10 | 11 | 91 | 10 | 9 | 95 | 4 | 4 |
| Journal of the Association for Information Science & Technology (JAIST), until 2014, Journal of the American Society for Information Science and Technology | 474 | 4 | 20 | 571 | 3 | 19 | 875 | 1 | 13 | 946 | 2 | 15 |
| Canadian Journal of Information & Library Science (CJILS) | 43 | 0 | 0 | 48 | 2 | 1 | 60 | 3 | 2 | 67 | 1 | 1 |
| Government Information Quarterly (GIQ) | 40 | 10 | 4 | 122 | 8 | 10 | 266 | 8 | 20 | 220 | 1 | 2 |

| Journal | 1998–2002 | | | 2003–2007 | | | 2008–2012 | | | 2013–2017* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Journals | 34 | | | 41 | | | 39 | | | 52 | | |
| | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles | Total Articles | % USAL Articles | Number USAL Articles |
| Online Information Review (OIR), until 2000, Online & CD-ROM Review | 177 | 21 | 41 | 177 | 7 | 12 | 237 | 1 | 3 | 276 | 1 | 2 |
| Information Processing and Management (IPM) | 216 | 0 | 0 | 332 | 1 | 4 | 366 | 1 | 2 | 346 | 0 | 0 |
| Journal of Information Science (JIS) | 196 | 0 | 0 | 210 | 1 | 2 | 242 | 0 | 1 | 278 | 0 | 0 |

**TABLE 2**
**Numbers of Articles and USAL Articles and Percentages of USAL Articles in Journals Studied, 1998-2017**

\* Table 2 is sorted by percentages of USAL articles from highest to lowest in 2013–17

For USAL articles, coauthorship continued to rise, up to 60.81 percent of articles from 53.55 percent in 2008–2012 and far above 41.09 percent in 1998–2002. The rate of coauthorship by USALs in 2013–17 fits with other studies of coauthorship for all authors in LIS journals, including three by Chang (54%, 60% and 61%) and Aytec and Slutsky (60%).[23] The USAL co-author percentages and the percentages of USAL articles discussed in the previous paragraph suggest that publishing USALs remain productive, but the number of articles they produce may be impacted as USALs collaborate more and publish less as sole authors.

One other aspect of coauthorship deserves attention: collaboration among librarians alone and between librarians and other types of authors, especially researchers. As figure 1 shows,

**FIGURE 1**
**Incidence of Types of USAL Coauthorship**



Number of Articles
Among USAL coauthored articles,
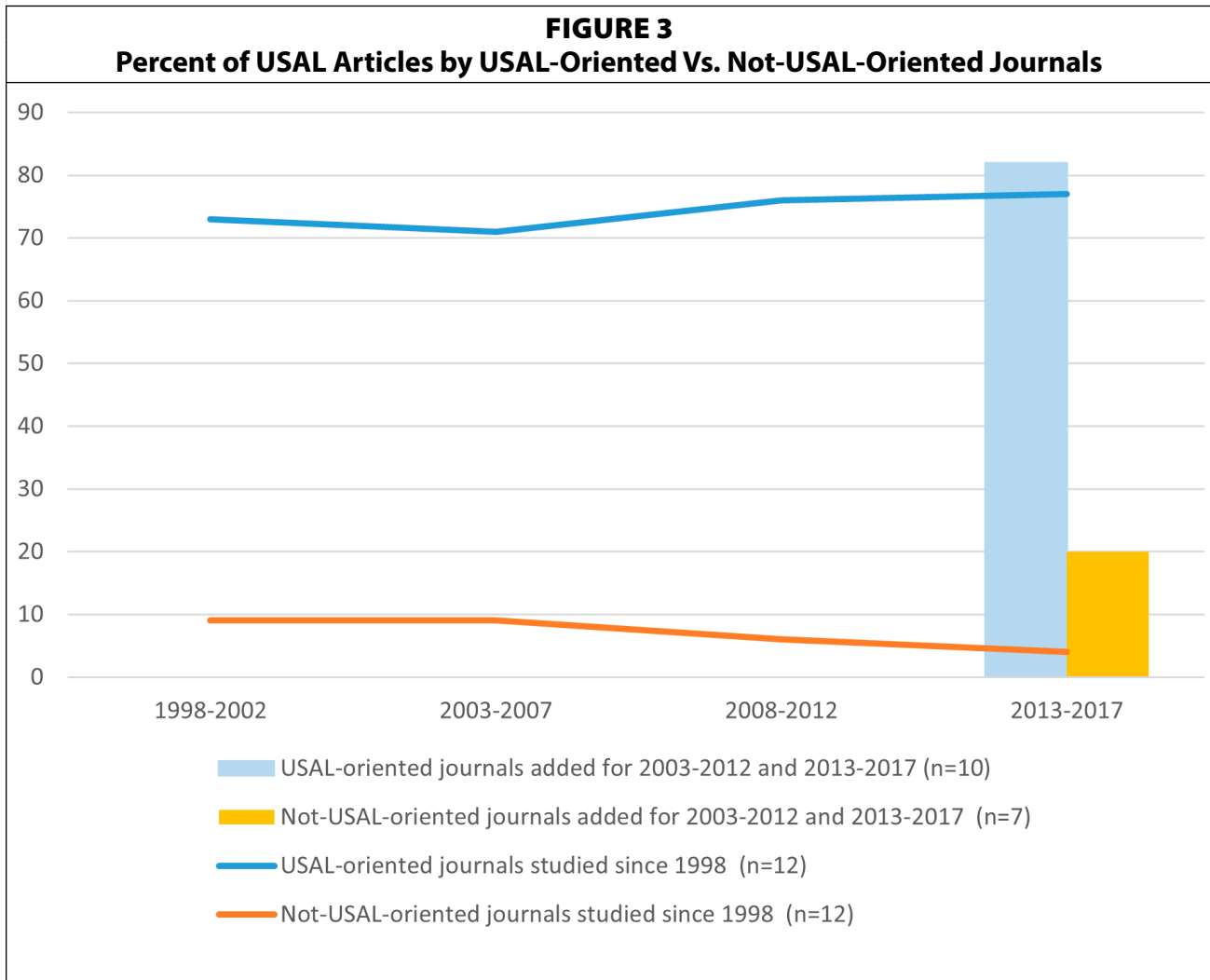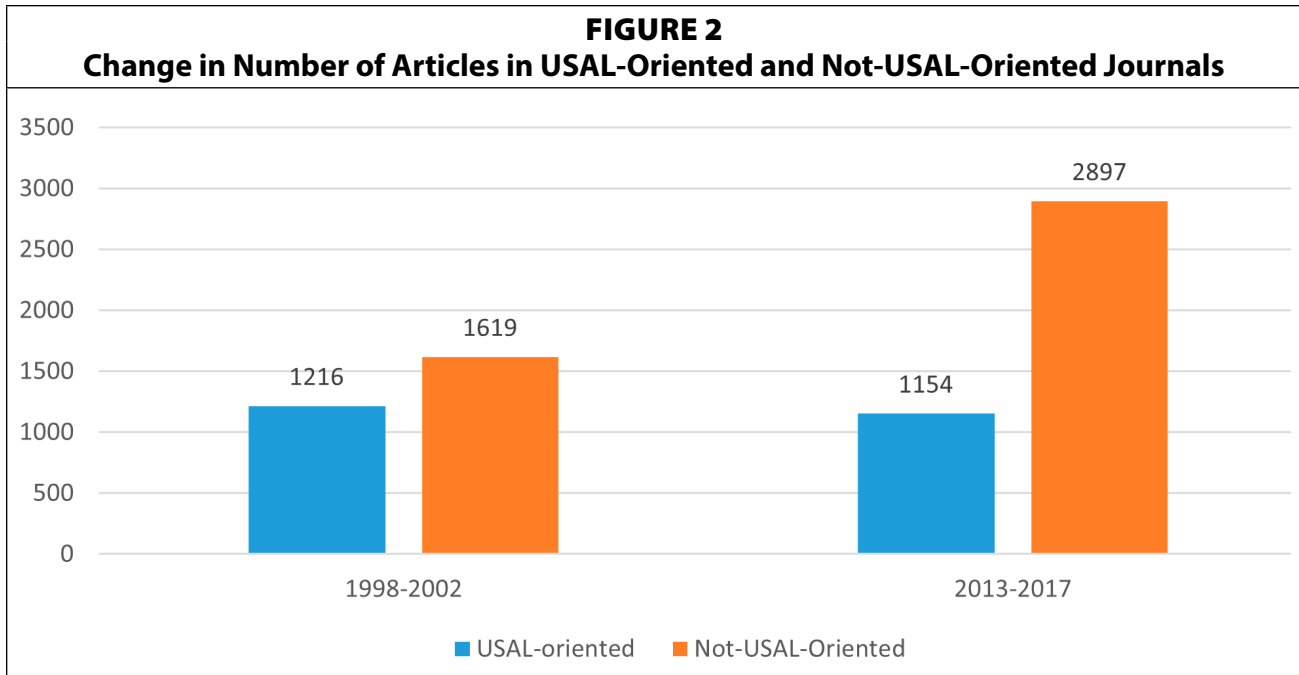873 had USAL authors from the same library
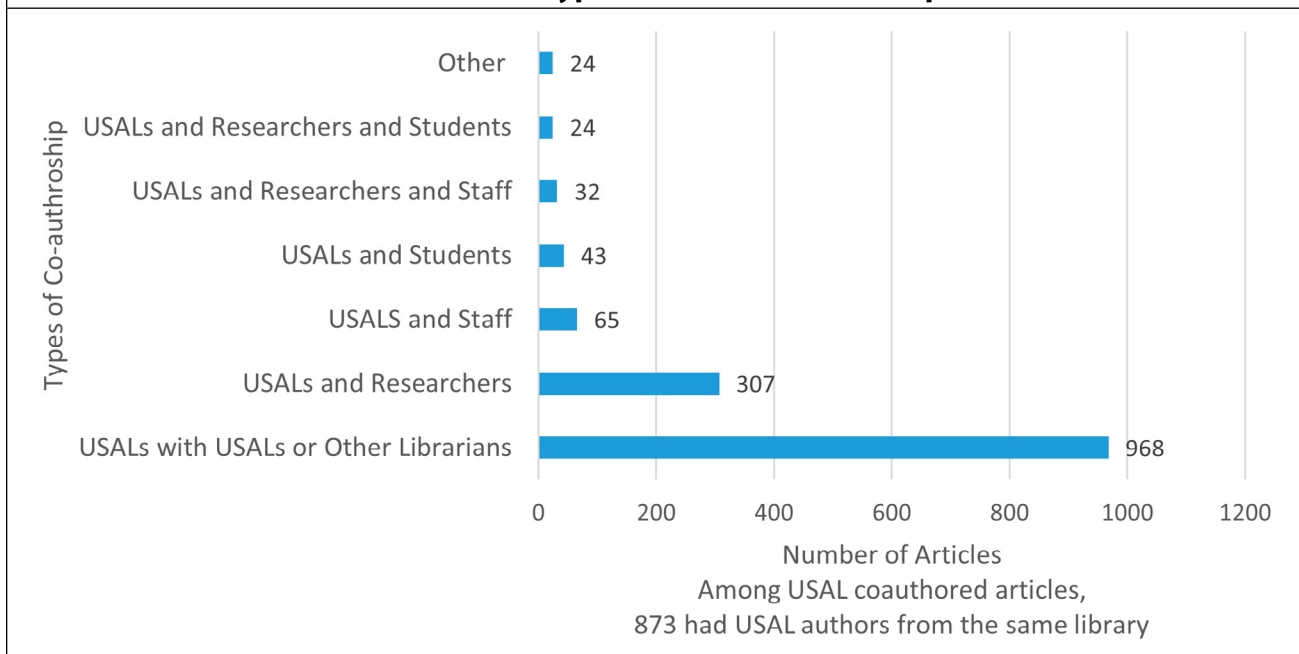
coauthorship among librarians was by far the most common type. In addition, there was note-worthy collaboration between librarians and researchers, and to some extent coauthorship with students and staff. Perhaps most important among all types and sizes of collaborations, there were 873 instances of ≥2 USALs from the same library participating as coauthors on a given article. There has been much discussion in recent years about how academic librarians can begin and sustain a research program.[24] Studies report that practitioners have found co-authorship with colleagues is a help for all, and early career librarians may especially benefit from collaboration with senior colleagues.[25]

### *Journals Studied*

Table 2 presents data about journals studied during four five-year periods, 1998–2002, 2003–8, 2009–12, and 2013–17. Similar data from 1993–97 are not available. For each journal for each period, the table reports total number of refereed articles, the percentage of USAL articles, and the number of USAL articles. The table is ordered from highest to lowest percentage of USAL articles in 2013–17. The table provides data for fifty-two journals: the thirty journals covered for 1998–2002 that are still published, seven added to the series for 2003–12, and fifteen added for 2013–17.

The range of the percentages of USAL articles for 2013–17 is striking: from 0 to 93 percent. Also worth noting is the range in the total number of referred articles published in each journal in 2013–17: from 26 to 946. Besides the great ranges of the percentages of USAL articles and of total number of articles, there is a noteworthy difference in change of output between 1998-2002 and 2013–17 among the thirty journals studied since 1998-2002. To measure this change, the present study applied a metric similar to what Walters and Wilder used to differentiate journals by the departmental affiliations of their authors. The present study distinguished between those journals currently oriented to USALs and those not oriented to USALs. Those journals that had ≥60 percent USAL authors in 2013–17 are USAL-oriented journals. Those that had ≥60 percent of articles with no USAL author in 2013–17, that is, journals with ≤40 percent USAL authors are not-USAL-oriented journals. In 2013–17, twelve journals studied since 1998 were oriented toward USALs—MRSQ, TSQ, BSSL, LRTS, RSR, CRL, JILDDER, CM, SL, STL, JMLA, and RUSQ—and twelve not oriented toward USALs—LQ, LHT, JELIS, IC, LISR, PL, JAIST, CJILS, GIQ, OIR, IPM, and JIS. Six journals were between the 60 percent and 40 percent benchmarks. USAL-oriented and not-USAL-oriented contrast most notably in the change in numbers of articles published in 1998–2002 and in 2013–17. As shown in figure 2, in 1998–2002 USAL-oriented journals published 1,216 articles, in 2013–17, 1,154 articles or 5.1 percent fewer. In contrast, not-USAL-oriented journals published 1,619 articles in 1998–2002 and 2,897 articles in 2013–17, an increase of 78.9 percent (see figure 2). The slight decline in the number of articles in USAL-oriented journals along with the substantial increase in the number of articles in not-USAL-oriented journals may help explain why the present and other studies find the percentage of LIS articles by librarians has decreased over the years even though other metrics suggest that overall publishing by USALs may be increasing.

In addition to the difference from 1998–2002 to 2013–17 of growth of USAL-oriented journals and not USAL-oriented journals, the present study looked at differences in percentages of USAL articles throughout the period. Figure 3 shows that in the twelve USAL-oriented journals studied since 1998 (enumerated above and depicted by a blue line in figure 3), the percentage of USAL articles has fluctuated but overall increased from 73 percent to 77 percent over the time periods

**FIGURE 2**
**Change in Number of Articles in USAL-Oriented and Not-USAL-Oriented Journals**



**FIGURE 3**
**Percent of USAL Articles by USAL-Oriented Vs. Not-USAL-Oriented Journals**

examined. A steady decline of USAL articles was observed in the not-USAL-oriented journals studied since 1998 (7% in 1998–2002 to 3% of articles in 2013–17, shown in an orange line). Among the twenty-two journals added to the studies in 2003 or 2013, ten were USAL-oriented in 2013–17 (CUL, IRSQ, ISTL, JERML, JERL JWL, RL, portal, JOLA, and JLISDL, light blue bar). Seven of the twenty-two added journals were not-USAL-oriented (CC, JMGL, NRAL, ILS, LM, LT, and HIJL, light orange bar). Twenty percent of the articles in not-USAL-oriented journals added for 2003–12 and 2013–17 were written by at least one USAL compared to 3 percent of the articles written in the not-USAL-oriented journals studied since 1998. The greater percentage of USAL articles in the post-2002 not-USAL-oriented journals than in not-USAL-oriented journals studied since 1998 is not a surprise given that the post-2002 journals were added in part based on evidence that USALs were publishing in them. Overall, this illustrates that the journals added to the study after 2002 captured a higher rate of USAL publishing than their counterparts studied since 1998.

## *Productivity*

For librarians who published, the results showed an increase in the percentage of those who published two, three, and four or more articles within five years. The percentage of journal-article-publishing USALs who published two or more articles increased from 21.65 percent in 1993–97 to 27.97 percent in the current study, an increase of 29 percent.[26] Preceding studies in the series discussed three articles in five years as a benchmark for high productivity and found that 6.07 percent of USAL authors studied in 1993–97 published three or more articles compared to 7.40 percent in 1998–2002, 9.64 percent in 2003–07, and 8.14 percent in 2008–12. The present study for 2013–17 found an increase to 10.80 percent (table 3), resulting in an increase of 78 percent over the course of the five five-year periods studied. The percentage of USALs who published four or more articles within five years varied over the years, with

| TABLE 3 Productivity of U.S. Academic Librarians from 2003 to 2017 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2003-2007** | | | | **2008-2012** | | | | **2013-2017** | | | |
| Number of articles | Number of authors | Percentage of authors | Cumulative percentage of authors | Number of articles | Number of authors | Percentage of authors | Cumulative percentage of authors | Number of articles | Number of authors | Percentage of authors | Cumulative percentage of authors |
| 12 | 0 | 0.00 | 0.00 | 12 | 1 | 0.04 | 0.04 | 12 | 0 | 0.00 | 0.00 |
| 11 | 0 | 0.00 | 0.00 | 11 | 1 | 0.04 | 0.08 | 11 | 0 | 0.00 | 0.00 |
| 10 | 1 | 0.05 | 0.05 | 10 | 0 | 0.00 | 0.08 | 10 | 2 | 0.07 | 0.07 |
| 9 | 1 | 0.05 | 0.10 | 9 | 0 | 0.00 | 0.08 | 9 | 0 | 0.00 | 0.07 |
| 8 | 0 | 0.00 | 0.10 | 8 | 2 | 0.09 | 0.17 | 8 | 5 | 0.17 | 0.24 |
| 7 | 6 | 0.28 | 0.38 | 7 | 5 | 0.22 | 0.39 | 7 | 2 | 0.07 | 0.31 |
| 6 | 16 | 0.73 | 1.11 | 6 | 8 | 0.35 | 0.74 | 6 | 11 | 0.38 | 0.69 |
| 5 | 13 | 0.60 | 1.71 | 5 | 15 | 0.66 | 1.40 | 5 | 34 | 1.18 | 1.87 |
| 4 | 40 | 1.83 | 3.54 | 4 | 30 | 1.32 | 2.72 | 4 | 65 | 2.26 | 4.13 |
| 3 | 133 | 6.10 | 9.64 | 3 | 123 | 5.42 | 8.14 | 3 | 192 | 6.67 | 10.80 |
| 2 | 367 | 16.82 | 26.46 | 2 | 419 | 18.47 | 26.61 | 2 | 494 | 17.17 | 27.97 |
| 1 | 1,605 | 73.56 | 100.02 | 1 | 1,664 | 73.37 | 99.98 | 1 | 2,072 | 72.02 | 99.99 |
| Column Totals | 2,182 | | | | 2,268 | | | | 2,877 | | |

an overall upward trend. In each of the five-year periods studied, the percentage was 2.77 percent in 1993–97, then was 2.76 percent, 3.54 percent, 2.72 percent, ending with 4.13 percent in 2013–17, or a 49 percent increase over the twenty-five years of these studies.

Just as the population of journals important to USALs changed, there is evidence that characteristics of publishing by USALs has also changed. In the different populations of journals studied over twenty-five years, there was an increase of 52 percent in the number of USAL articles from 1,579 to 2,406 (table 1). Concurrently there was an increase of 106 percent in coauthored USAL articles from 710 to 1,463. Increasing coauthorship is likely one of the reasons that the number of USALs who published two or more, three or more, and four or more articles in a five-year period has increased. It is also possible that the journals added to the study since 2003 address topics better investigated by two or more authors. Overall, as a result of the interplay of various factors, a USAL who publishes three or more articles in five years could once say they were in the top six percent of publishing USALs, but now the same USAL would be in the top 11 percent of publishing USALs, which is still a strong achievement to discuss in a promotion and tenure dossier.

### *Libraries*

Table 4 documents productivity for the top-producing libraries over the five-year period of this study and each of the four five-year periods of preceding studies. Because four libraries in 2013–17 tied for twentieth place, the table presents ranks and numbers of articles for twenty-three libraries. Of the twenty-three, twenty belonged to institutions that had the Carnegie designation of Doctoral University Highest Research Activity for 2017; only Long Island University, Oakland University, and Kent State University are classed differently.[27] Of the twenty-three, twenty were in public universities. The only libraries in private institutions were Long Island University, New York University, and Cornell University. Newcomers include Oakland University, New York University, Texas Tech University, University of Arkansas, Fayetteville, and University of Houston. Of note, Cornell University ranked in the top twenty in 2003–07, and Long Island University, Kent State, and the University of New Mexico ranked in the top 20 in 2008–12, but those rankings do not appear in Blecic et al. because that study presented data for 2003–12, not the two five-year periods that make up those years. The University of Illinois Urbana-Champaign returned in 2013–17 to the rank of highest producer. The seven libraries that appeared in the top twenty in the four preceding five-year periods made the top twenty once again: The Ohio State University, Penn State University, Texas A&M University, University of Colorado at Boulder, University of Florida, University of Illinois Chicago, and University of Illinois Urbana-Champaign.

In their study of thirty-one LIS journals published between 2007 and 2012, Walters and Wilder listed the forty libraries that contributed the most articles. These included not only U.S. academic libraries, but also other types of libraries located both within and outside the U.S. Of the twenty most productive U.S. academic libraries in Walters and Wilder, sixteen are among the top twenty in Blecic et al.'s study for 2003-2012. These two studies had eighteen source journals in common. For the present study, covering 2013-2017, there are ten top twenty US academic libraries and seventeen source journals in common with Walters and Wilder's list. The difference between sixteen and ten U.S. academic libraries in common is possibly because Blecic et al. covers all six years of Walters and Wilder's study in contrast to no chronological overlap with the present study. Also, the present

| TABLE 4 | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Library Productivity: Most Productive Libraries Ranked by Number of Articles in the Journals Studied** | | | | | |
|  | **1993-1997** | **1998-2002** | **2003-2007** | **2008-2012** | **2013-2017** |
| **Institution** | **Rank (number of articles)** | **Rank (number of articles)** | **Rank (number of articles)** | **Rank (number of articles)** | **Rank (number of articles)** |
| University of Illinois Urbana-Champaign | 3(40) | 1(42) | 1(94) | 2(55) | 1(81) |
| Penn State University | 1(46) | 3(38) | 2(59) | 4(45) | 2(61) |
| Rutgers University | 8(27) | not top 20 | 18(20) | not top 20 | 3(41) |
| Long Island University | not top 20 | not top 20 | not top 20 | 12(23)* | 3(41) |
| Texas A&M University | 10(25) | 2(41) | 4(38) | 1(62) | 5(40) |
| The Ohio State University | 2(41) | 3(38) | 6(36) | 3(46) | 6(38) |
| University of Illinois Chicago | 4(38) | 5(35) | 5(37) | 8(27) | 7(33) |
| Oakland University | not top 20 | not top 20 | not top 20 | not top 20 | 8(31) |
| New York University | not top 20 | not top 20 | not top 20 | not top 20 | 9(30) |
| University of Colorado at Boulder | 17(14) | 15(14) | 3(48) | 14(22) | 9(30) |
| University of Florida | 13(19) | 17(12) | 13(26) | 10(24) | 11(29) |
| Purdue University | not top 20 | 6(21) | 12(27) | 12(23) | 11(29) |
| University of Michigan | 11(24) | 11(18) | not top 20 | not top 20 | 13(27) |
| University of Minnesota - Twin Cities | 7(28) | not top 20 | 18(20) | 14(22) | 13(27) |
| Kent State University | 17(14) | not top 20 | not top 20 | 10(24)* | 15(26) |
| University of Arizona | 16(15) | not top 20 | 17(21) | not top 20 | 15(26) |
| University of Nevada, Las Vegas | not top 20 | not top 20 | 8(32) | not top 20 | 15(26) |
| Auburn University | 13(19) | not top 20 | not top 20 | not top 20 | 18(25) |
| Cornell University | 6(32) | 8(20) | 11(28)* | not top 20 | 19(24) |
| Texas Tech University | not top 20 | not top 20 | not top 20 | not top 20 | 20(22) |
| University of Arkansas, Fayetteville | not top 20 | not top 20 | not top 20 | not top 20 | 20(22) |
| University of Houston | not top 20 | not top 20 | not top 20 | not top 20 | 20(22) |
| University of New Mexico | 12(21) | 6(21) | not top 20 | 18(18)* | 20(22) |
| *Some Data for Long Island University, Kent State University, Cornell University, and the University of New Mexico was not previously published but retrieved from data sets of a predecessor article. | | | | | |

study has fifteen more source journals than Blecic et al., only two of which are covered by Walters and Wilder.

The authors also examined the status of librarians at each of the twenty-three libraries. At nineteen of the top libraries, some or all the librarians had positions with faculty status and tenure.[29] The very high proportion of libraries with faculty-status librarians fits with Galbraith, Smart, Smith, and Reed's study of academic librarian authors in twenty-three highly ranked library science journals in 2007 and 2009. Of those authors, 64 percent had both faculty status and eligibility for tenure.[30] Faculty status and eligibility for tenure are associated with high publishing activity among U.S. academic librarians.

While libraries with faculty status and eligibility for tenure are leaders in publication,

appointment status is not the only factor influencing productivity. As seen in the literature cited in the present article and its predecessors, academic librarians have been studying how to increase research among practitioners and pointing to academic librarians' accomplishments in research. More recently, training institutes like Loyola Marymount Library's Institute for Research Design in Librarianship and the Medical Library Association's Research Training Institute have provided training and support to academic librarians who want to succeed in research.[31] The attention given to research by the profession may have increased output. Publication data show that many libraries have increased their productivity over twenty-five years.

Although the top twenty libraries continue to be productive, the percentage of literature they contributed continued to decrease. Among all refereed articles they provided 14 percent for 1993–97; 12.4 percent for 1998–2002; 11.5 percent for 2003–12 and declined to 9.99 percent for 2013–17. The decline is understandable given the great increase in the number of refereed articles in not USAL-oriented journals shown in figure 2.

Among all USAL articles the top twenty provided 32.2 percent for 1993–97, 31.3 percent for 1998–2002, 31.2 percent for 2003–12, and 28.55 percent for 2013–17. However, the number of USAL articles in the top twenty varied, going from 509 in 1993–97 to 432 in 1998–2002 to 658 in 2003–2007 to 561 in 2008–12 to 687 in 2013–17. (Because four libraries tied for the rank of twentieth in 2013–17, 687 includes for twentieth place twenty articles, the number at which the four tied.) So, while percentages may be decreasing, the total number of articles for the top twenty is evidence that the productivity of the top twenty continues. The number of unique U.S. libraries contributing to the journal literature reported in table 1 rose from 396 to 593 over twenty-five years, diluting the contributions of the top-twenty libraries. They are now a smaller percentage of journal article producers even though they have continued to be prolific. At the same time, the present study shows that more libraries and USALs are contributing to the literature than previously reported.

In reflecting on trends in productivity among institutions, we need to consider the impact of journals added for the 2013–17 studies. Libraries that were new to the top-producing libraries in 2013–17 placed at about the same percentage of their publications (23%) in the journals added to the study for 2013–17 as those libraries previously in the top (24%). Furthermore, the libraries new to the top-producing libraries published about the same percentage of their articles in journals that had been studied before 2003 as did libraries that remained on the top producers list: 64 percent (new) compared to 61 percent (previous). These similarities suggest that the mix of journals studied is not likely affecting the declining percentage of contributions of top twenty libraries. Perhaps efforts to develop research among academic librarians through publication and training institutes are helping to build skills and support mechanisms in libraries that had not had them before, leading to an increase in contributions from more academic libraries.

## Limitations

Probably the most significant limitation of this study, but one common to all studies of this type, is that it covered only a subset of relevant refereed journals, even if these journals met tests of importance. While adding journals not covered by earlier studies brought newly prominent journals into the population studied and was necessary as USALs' choice of publishing venues shifts over time, their addition limits the weight of comparisons with those earlier studies. Also, because journals give different kinds of evidence about whether an article was

peer reviewed, the authors sometimes had to make judgment calls about which articles were refereed and which were not. In collecting manually so much data, the authors were bound to make mistakes. While the data were not checked comprehensively, on numerous occasions the authors discussed application of their criteria for inclusion to particular cases and, during data analysis, rechecked many times their own or each other's work. Finally, while refereed journal articles may arguably be the most important format of publication for academic librarians, they are not the only format in which librarians publish.

## Directions For Future Research

While numerous studies have found that the refereed journal article is the most important type of publication in LIS and for USALs, to gain an additional picture of scholarship among academic librarians it would be worthwhile to study their scholarly communications besides their refereed articles. This could entail selecting a population of USALs and investigating the extent of their contributions in a wide range of formats.

Research has provided evidence that support for research is growing, and that collaboration between experienced and beginning researchers is one of the most effective ways to nurture new scholars.[32] An analysis of coauthored articles published since, say, 2010 would be one way to assess change over time in junior-senior researchers' collaboration.

The great range in the percentages of USAL contributions to different journals and the decline in the percentage of USAL refereed articles among all refereed articles raises questions about change over time in LIS. There is evidence that the proportion of journal articles about topics and perspectives relevant to USALs' practice has declined.[33] Individual journals reflect that change too. For example, after fifty years and four name changes, *The Journal of Library History* evolved to *Information and Culture*.[34] Today it seldom has articles about library topics. Studies of how journals have developed and evolved would help us understand changes in the field.

## Conclusion

The findings of the present study of USAL journal article publishing patterns for 2013–17 documents USALs' productivity, how their productivity compares to earlier periods studied, change in the journals where USALs publish, the growth in individual productivity and coauthorship, and which U.S. academic libraries are most productive. USAL authors continue to contribute a significant portion of the LIS literature, although the percentage is not as great as during 1993–97. From 2013 to 2017, USALs wrote 35 percent of the articles published in fifty-two leading LIS journals. From 1993 to 1997 they wrote 43.57 percent in thirty-two journals. The decline over time is similar to findings of other studies.[35]

The lower percentage of USAL articles for the 2013–17 period is not necessarily a sign that productivity of USALs is declining. For thirty journals studied since 1998, those that are not-USAL-oriented have increased the number of refereed articles published from 1619 in 1998–2002 to 2,897 in 2013–17, (78.9% more). In contrast, USAL-oriented journals studied since 1998 published 5.1 percent fewer articles (1,216 in 1998–2002 and 1,154 in 2013–17). This difference suggests that growth in areas of LIS other than library science is changing the composition of the literature of the field and resulting in much higher percentages of publications by non-USALs. Also, examination of USALs' publication patterns has revealed that they have shifted where they have published. In the twenty-two journals studied since 2003, USALs wrote 49.22 percent of the articles in 2013–17; in the thirty journals studied since 1998, they wrote

28.98 percent of the articles published in 2013–17. Other metrics for USAL productivity were also the highest for the twenty-two journals added since 2003 when compared to the overall metrics for the five five-year periods studied. Scholarly communication in any field changes over time, and the data suggests that a significant amount of USAL publishing has migrated to journals about practice not studied in the first articles in this series.

Additional metrics support the idea that USAL article productivity is increasing but not as much as article productivity in other areas of LIS. Except for 1998–2002, USAL articles per issue have stayed steady since 1993–97. In that period, there were 2.25 USAL articles per issue, in 2013–17 2.18. Overall refereed articles per issue increased from 5.16 to 6.23. The number of issues increased 57 percent, from 703 to 1,104 over twenty-five years, and the number of articles rose by 90 percent from 3,624 to 6,874. USAL articles increased also, but only by 52 percent, from 1,579 to 2,406.

While the number of USAL articles per issue has remained steady, USAL authors per issue increased. In 1993–97, there were 2.89 USAL authors per issue, in 2013–17 3.81. Coauthorship seems to play into these increases. In 2013–17, 60.81 percent of the USAL articles were coauthored. This contrasts with 44.97 percent in 1993–97. Probably due to increases in coauthorship, the percentage of USAL authors reaching the benchmark of three or more articles in 2013–17 was 10.80 percent, in contrast to 6.10 percent in 1993–97.

In all, this study of publication patterns of USALs from 2013 to 2017 provides a picture, in historical context, of their contributions to LIS, coauthorship among them, the libraries that produce the most refereed articles, and benchmarks of individual productivity. The twenty-five-year perspective and several metrics used in this study tell us that while USALs are producing a smaller proportion of the journal literature of LIS, their contributions to that literature are growing, but not as quickly as other areas of LIS.

## Notes

1.  Ann C. Weller, Julie M. Hurd, and Stephen E. Wiberley, Jr., "Publication Patterns of U.S. Academic Librarians from 1993 to 1996," *College & Research Libraries* 60, no. 4 (1999): 352–62, https://doi.org/10.5860/crl.60.4.352, referred to in Table 1 as WHW1; Stephen E. Wiberley, Jr., Julie M. Hurd, and Ann C. Weller, "Publication Patterns of U.S. Academic Librarians from 1998 to 2002," *College & Research Libraries* 67, no. 3 (2006): 205–16, https://doi.org/10.5860/crl.60.4.352, referred to in table 1 as WHW2.

2.  Deborah D. Blecic, Stephen E. Wiberley, Jr., Sandra L. De Groote, John Cullars, Mary Shultz, and Vivian Chan, "Publication Patterns of U.S. Academic Librarians and Libraries from 2003 to 2012," *College & Research Libraries* 78, no. 4 (2017): 442–58, https://doi.org/10.5860/crl.78.4.442, referred to in table 1 and text as Blecic et al..

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